Remarks

Claims 1-25 are pending. Claims 15-18 and 21-24 are withdrawn. Claims 7 and 9 are canceled herein. Therefore, claims 1-6, 8, 10-14, 19-20, and 25 are under consideration. Applicants acknowledge that claims 11 and 25 have been allowed. Applicants have amended claim 1 to recite "wherein said peptide has the formula: A-X1-X2-X3-X4-X5-X6-X7-X8-X9-B, and wherein the sequence X6-X8 is arg-pro-met." Support for amended claim 1 can be found throughout the specification and at least in original claim 7 and on page 9, line 25, where the trimer sequence arg-pro-met is discussed. Claim 10 has been amended to change dependencies necessitated by the cancellation of claim 9. Claims 4 and 6 have been amended to remove limitations made redundant by the Amendment to claim 1. Applicants believe that no new matter was created nor new issues are raised by these amendments.

35 U.S.C. § 112, first paragraph

The Examiner has rejected claims 1-10, 12-14 and 19-20 under 35 U.S.C. § 112, first paragraph, as allegedly not being enabled. In particular, the Examiner alleges that "while being enabling for a composition comprising a peptide that selectively binds to HT29 colon cancer cells comprising arg-pro-met (RPM) sequence adjacent to the C-terminal cysteine as, does not reasonably provide enablement for a composition comprising just any peptide that selectively binds to just any colon cancer cell." Applicants respectfully traverse this rejection.

Applicants respectfully point out that claim 1 has been amended to recite "wherein said peptide has the formula: A-X1-X2-X3-X4-X5-X6-X7-X8-X9-B, and wherein the sequence X6-X8 is arg-pro-met." Therefore, in light of the amendments to claim 1, with respect to the RPM sequence, this rejection is now moot. Additionally, Applicants respectfully submit that the Examiner is incorrect regarding the teach of selective binding only to HT29 cells. Applicants specifically disclose on page 8, lines 4-11 that selective binding was shown using "tumor tissue from four patients." Applicants respectfully remind the Examiner that the standard for enablement is whether the claimed invention coupled with the information known in the art enables one of skill in the art to make and use the invention without undue experimentation. *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir.1988). Applicants respectfully remind the Examiner that with respect to determining undue experimentation, "the test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely

routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed." *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) (citing *In re Angstadt*, 537 F.2d 489, 502-04, 190 USPQ 214, 217-19 (CCPA 1976)).

In determining whether experimentation is undue, the Federal Circuit in *In re Wands* provided a non-exclusive list of factors for determining undue experimentation including 1) the breadth of the claims; 2) the nature of the invention; 3) the state of the prior art; 4) the level of one of ordinary skill; 5) the level of predictability in the art; 6) the amount of direction provided by the inventor; 7) the existence of working examples; and 8) the quantity of experimentation needed to make or use the invention based on the disclosure. Here, the claims are narrowly drawn to peptides that selectively bind colon cancers cells, possess the general formula A-X1-X2-X3-X4-X5-X6-X7-X8-X9-B, and possess the amino acids arg, pro, and met, at residues X6, X7, and X8, respectively. Thus, the claims only cover peptides meeting these characteristics. Moreover, as the claims are drawn to a peptide with certain binding ability, and the art is repleat with examples of people synthesizing peptides and monitoring the strength of binding of peptides, both the state of the art and level of originary skill is high. Applicants respectfully remind the Examiner that it is a well known tenet of patent law that the amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art. *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). Nevertheless, Applicants specifically teach how to produce the peptides and test the peptides for binding as well as a working example. Moreover, Applicants show how to test binding in four clinical samples and one cancer cell line. By contrast, the Examiner has not put forth any evidence showing the peptides as now claimed would not be enabled. The Examiner has not met this burden with respect to the amended claims and therefore has not established a reasonable basis for rejecting the claims for lack of enablement. Applicants believe this rejection to be overcome and respectfully request its withdrawal.

35 U.S.C. § 102

The Examiner has rejected claims 1-5, and 12-14 under 35 U.S.C. § 102 as allegedly being anticipated by Wolfe et al. (Journal of Nuclear Medicine Vol. 43 No. 3 pp.392-399). In particular, the Examiner contends that Wolfe et al. teach a cyclic peptide that specifically binds

to colon cancer cells. Applicants respectfully traverse the rejection. It is a long established tenet of patent law that in order for a reference to anticipate the claim, it must teach each and every limitation of the claim. Applicants respectfully point out that claim 1 is drawn to "a peptide that **selectively** binds to colon cancer cells." [emphasis added]. As noted by the court in *Phillips v. AWH Corp.*, claims are given there broadest reasonable interpretation in light of the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005). Moreover, Applicants are allowed to be there own lexicographer. See *In re Paulsen*, 30 F.3d 1475, 1480, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994). Applicants define "selective" on page 11, lines 8-9. Therein Applicants state that "a peptide is 'selective' for ginding to tumor cells when it binds at least about twice as strongly to tumor cells as to normal cells." Respectfully, Wolfe et al. does not teach the selective binding of a peptide to colon cancer cells as defined in the specification. The peptides described in Wolfe et al. bind the extracellular domain of Guanylyl cyclase C that is "expressed by human intestinal cells and primary and metastatic colorectal adenocarcinomas, but not by extraintestinal tissues or tumors." (see column 1, first paragraph, page 392 of Wolfe et al.) Hence, the peptides Wolfe et al. only distinguish tissue of intestinal origin that is outside the intestines from other tissues that are not of intestinal origin. The peptides disclosed in Wolfe et al. do not distinguish cancerous colon cells from non-cancerous colon cells. For at least this reason, Wolfe et al. fails to teach all the limitations of the claims. Therefore, Wolfe et al. does not anticipate claims 1-5, and 12-14.

Additionally, Applicants have amended claim 1 to recite "wherein said peptide has the formula: A-X1-X2-X3-X4-X5-X6-X7-X8-X9-B, and wherein the sequence X6-X8 is arg-pro-met." Applicants respectfully point out that Wolfe et al. do not disclose let alone teach a peptide comprising the trimer arg, pro, met. Therefore, Wolfe et al. does not teach all the limitations of the claims. Applicants believe this rejection has been overcome and respectfully request its withdrawal.

35 U.S.C. § 103

The Examiner has rejected claims 1-5, 12-14, 19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Wolfe et al. in view of Mazar et al. (U.S. Patent No. 6/277,818). Applicants respectfully traverse the rejection. In the recent KSR Int'l Co. v Teleflex, Inc. ruling, the Supreme Court has reaffirmed the *Graham* factors for determination of obvious under 35

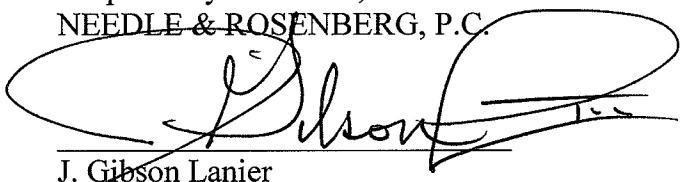
U.S.C. 103(a). *KSR Int 'l Co. v. Teleflex, Inc. (KSR),* No 04-1350 (U.S. Apr. 30, 2007). The three factual inquiries under *Graham* require examination of: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the pertinent art. *Graham v. John Deere (Graham),* 383 U.S. 1, 17-18, 149 USPQ 459, 467 (1966). Additionally, the court in Graham noted a fourth consideration for the determination of obviousness would beany objective evidence of secondary considerations such as unexpected results, unmet need in the art, and commercial success. Furthermore, in order to establish a prima facie case of obviousness, the examiner has the initial burden of supporting the conclusion of non-obviousness. In particular, the Examiner has the intial burden of ascertaining the differences between the claims and the prior art which requires interpreting both the art and the claims as a whole. Put another way, "all words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Applicants respectfully assert that the prior art alone or in combination does not teach all the limitations of the claims. As Applicants have demonstrated above, Wolfe et al. does not teach all limitations of the claim. Specifically, Wolfe et al. does not teach the selective binding to colon cancer cells. Additionally, Wolfe et al. do not disclose let alone teach a peptide comprising the trimer arg, pro, met.Therefore, the Examiner must rely on Mazar to disclose this deficiency. The Examiner cites Mazar for the alleged teaching of "cyclic peptide ligands that target urokinase plasminogen activator receptor," as well as, the alleged disclosure of "pharmaceutical compositions comprising said cyclic peptides." Applicants respectfully note that Mazar also does not disclose let alone teach "a peptide that selectively binds to colon cancer cells.". Thus, alone or in combination, the cited art fails to disclose all the limitations of the claims which is necessary to establish an claim of obviousness when the claim as a whole is considered. Accordingly, Applicants believe that the Examiner has met the necessary requirements to establish a prima facie case of obviousness. Applicants believe this rejection has been overcome and respectfully request its withdrawal.

Pursuant to the above remarks, reconsideration and allowance of the pending application is believed to be warranted. The Examiner is invited and encouraged to directly contact the undersigned if such contact may enhance the efficient prosecution of this application to issue.

A credit card payment in the amount of $525.00 is being submitted electronically, representing the small-entity fee for a three (3) month Extension of Time under 37 C.F.R. § 1.17(a)(3), and a Request for a three (3) month Extension of Time are enclosed. This amount is believed to be correct; however, the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-0629.

Respectfully submitted,
NEEDLE & ROSENBERG, P.C.



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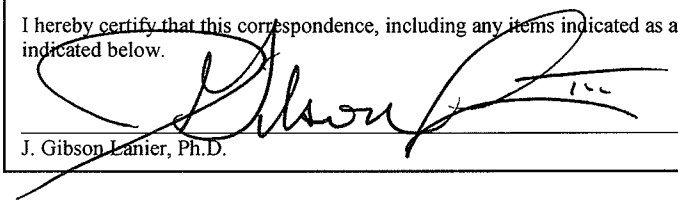

J. Gibson Lanier, Ph.D.

4/3/08
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